HOW TALL IS THAT TREE?

You don’t have to carry your tape measure to the top of a tree to measure how tall it is! Here is a useful trick you can use to measure trees and other tall things too.

What You Need:
- A partner to work with
- A pencil
- A tape measure or ruler

What to Do:

1. Find a tall tree which is on fairly flat ground.
2. Back up from the tree. Stop when you are farther away from the tree than the tree is tall (if the tree fell, in your direction, it wouldn’t reach you).
3. Ask your partner to stand at the base of the tree (see sketch).
4. Hold a pencil straight up and down. Hold it at the bottom edge. Line it up vertically with the tree.
5. Close one eye and move hand closer and farther from you face until it seems to be the same height as the tree.
6. Carefully turn the pencil sideways keeping your thumb lined up with the tree trunk. Your pencil should now look like it is lying along the ground (see sketch).
7. Ask your partner to walk away from the tree. It will seem as if your partner is walking along the pencil. Tell your partner to stop when he or she is lined up with the end of the pencil.
8. Use the measuring tape (or ruler) to measure the distance from the base of the tree out to the place where your partner is standing. This is about the height of the tree.

Note: You could also have your partner measure their pace and then multiply that by the number of steps they take.
Stumps Tell a Story

If you come upon a dry tree stump, you can take a rubbing that will tell you the tree’s life story.

What You Need:
- Large paper
- Thumb Tacks
- Charcoal (from art supply stores)

What To Do:

1. Stretch the paper across the stump. Hold it in place with thumbtacks or tape, so it can’t move.
2. Use the side of a piece of charcoal to rub across the paper. Rub in just one direction for best results.
3. Soon the tree rings and other marks on your stump will show on the paper.
4. While you are still at the stump, mark the center of the tree on your rubbing and count off the rings marking every 10\(^{\text{th}}\) ring (and year). If anything is unclear on the rubbing you can check it while still at the stump.

Here is what you can learn about the tree’s life.

1. The number of rings tells you how old the tree was when it was chopped down. By counting backward from the outermost ring you can find the ring that grew the year you were born.
2. Look at the growth rings. Are some of them wider or narrower than others? This could show good growing years, when there was lots of rain and bad growing years during droughts.
3. Was the tree growing evenly in all directions? If it grew more on one side than another can you see a reason for that? For example was the tree crowded on one side by a building or other tree?
4. If the tree is old, it might be interesting to discover what things were like when it sprouted from a seed and began to grow. Perhaps it is in the middle of a city now, but 50 years ago it may have been in the middle of a field.
5. How large was the tree when selected world events occurred?